



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,052	01/07/2002	Matthew R. Perkins	CM03381J	1946

7590

03/23/2004

Andrew S. Fuller  
Motorola, Inc.  
Law Department  
8000 West Sunrise Boulevard  
Fort Lauderdale, FL 33322

EXAMINER

STAFIRA, MICHAEL PATRICK

ART UNIT      PAPER NUMBER

2877

DATE MAILED: 03/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/041,052

Applicant(s)

PERKINS ET AL.

Examiner

Michael P. Stafira

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21, 24, 26-29, 32-35, 40-42 and 45-47 is/are rejected.
- 7) ☒ Claim(s) 22, 23, 25, 30, 31, 36-39, 43 and 44 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,8,10,14 are rejected under 35 U.S.C. 102(b) as being anticipated by deVos et al. ('354).

#### **Claim 1**

deVos et al. ('354) discloses a lens (Fig. 2, Ref. 40) for receiving light from the light source (Fig. 2, Ref. 20) and projecting a light pattern (Fig. 2, Ref. 16); a light sensing surface (Fig. 2, Ref. 36) for receiving the light pattern (Fig. 2, Ref. 16) from the lens (Fig. 2, Ref. 40) and producing an output signal (Fig. 5, Ref. 41) in response thereto; and a processor (Fig. 5, Ref. 22) responsive to the output signal; wherein the processor (Fig. 5, Ref. 22) is operable to determine the direction of a light source (Fig. 2, Ref. 40) from the output signal (See Abstract).

#### **Claim 8**

The reference of deVos et al. ('354) further discloses an analog-to-digital converter (Fig. 5, Ref. 38) coupled to the light sensing array and the processor, and operable to convert the output signal into a digital output signal and provide the digital output signal to the processor (Col. 8, lines 47-50).

#### **Claim 10**

Art Unit: 2877

deVos et al. ('354) further discloses a memory coupled to the processor (Col. 8, lines 4-7).

**Claim 14**

deVos et al. ('354) further discloses the light sensing surface (Fig. 2, Ref. 36) is flat (See Fig. 2).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-7,9,11-13,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over deVos et al. ('354).

**Claims 2 & 3**

deVos et al. ('354) discloses the claimed invention except for the lens is a pin-hole or a holographic lens. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with the pin-hole or holographic lens since it was well known in the art that these types of lens increase the sensitivity of the measurement since they help filter out background noise.

**Claims 4-7**

deVos et al. ('354) discloses the claimed invention except for the light sensing surface is a plurality of sensing elements, elements sensitive to a plurality of spectra, CCD array, or

Art Unit: 2877

photodiode array. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with the plurality of sensing elements, CCD array, or photodiode array since it was well known in the art that using an array of detectors increases the sensitivity of the light striking the sensor, therefore giving a more accurate measurement.

**Claim 9**

deVos et al. ('354) discloses the claimed invention except for a display coupled to the processor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with a display since it was well known in the art that using a display gives visual indicators to the user, therefore creating a verification that the user can confirm.

**Claim 13**

deVos et al. ('354) discloses the claimed invention except for the processor includes a demodulator. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with the demodulator since it was well known in the art that a demodulator are used to extract from a modulated carrier, therefore allowing the processor to receive a pure signal which increases the measurement reliability.

**Claim 15**

deVos et al. ('354) discloses the claimed invention except for the light sensing surface is concave. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with the concave surface of the light sensing element since it was well known in the art that using a concave element maximizes the amount

Art Unit: 2877

of light received by the detector without loss, therefore providing more accurate measurements since less light is lost.

5. Claims 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over deVos et al. ('354) as applied to claim 1 above, and further in view of Maynard ('452).

**Claims 11 & 12**

deVos et al. ('354) substantially teaches the claimed invention except that it does not show a communication transmitter or a receiver coupled to the processor. Maynard ('452) shows that it is known to provide a communication transmitter (Fig. 2a, Ref. "Second laser system") or receiver (Fig. 2a, Ref. "Radio Receiver") for a three dimensional tracking system. It would have been obvious to combine the device of deVos et al. ('354) with the transmitting or receiving of Maynard ('452) for the purpose of providing continuous data transfer of the position of the object, therefore allowing the user to see data in real-time of the position of the object.

6. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by deVos et al. ('354).

**Claim 16**

deVos et al. ('354) discloses receiving light from the light source (Fig. 2, Ref. 20); projecting the light onto a light sensing surface (Fig. 2, Ref. 36); determining the position of the projected light on a light sensing surface (See Abstract); and mapping the position to a direction (It is the position of the examiner that calculating the X,Y,Z is mapping the position to a direction since it is coordinates).

Art Unit: 2877

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over deVos et al. ('354).

**Claim 17**

deVos et al. ('354) discloses the claimed invention except for the mapping uses a look-up table. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with the look-up tables since it was well known in the art that providing decreases the amount of time needed to process the data, therefore providing a faster turn-around of the data.

8. Claims 18-21,24,27 are rejected under 35 U.S.C. 102(b) as being anticipated by deVos et al. ('354).

**Claim 18**

deVos et al. ('354) discloses receiving light from a light source (Fig. 2, Ref. 20); projecting the light (Fig. 2, Ref. 16) onto a light sensing surface (Fig. 2, Ref. 36) to form a projected image; receiving a signal (Fig. 5, Ref. 41) from the light sensing surface (Fig. 2, Ref. 36), the signal being indicative of the position of the projected image on the light sensing surface (See Abstract); retrieving stored information from a memory (Col. 7-8, lines 68-10); and determining the position of the device from the signal and the stored information (See Abstract);

**Claim 19**

deVos et al. ('354) discloses the stored information includes the location of the light source (See Abstract).

Art Unit: 2877

**Claim 20**

The reference of deVos et al. ('354) further discloses the stored information includes the vertical position of the device (Col. 10, lines 1-11).

**Claim 21**

deVos et al. ('354) further discloses the stored information includes the orientation of the device (Col. 10, lines 26-47).

**Claim 24**

The reference of deVos et al. ('354) further discloses measuring the intensity of the collimated beam; determining the distance from the device to the light source (Col. 3-4, lines 60-5); and storing the distance in the memory (Col. 8, lines 1-8), wherein the stored information includes the distance.

**Claim 27**

deVos et al. ('354) discloses storing the position of the device in memory (Col. 8, lines 1-10).

9. Claims 26,28,29 are rejected under 35 U.S.C. 103(a) as being unpatentable over deVos et al. ('354).

**Claim 26**

deVos et al. ('354) discloses the claimed invention except for a displaying a position on a display. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with a display since it was well known in the



Art Unit: 2877

art that using a display gives visual indicators to the user, therefore creating a verification that the user can confirm data measurements.

**Claim 28**

deVos et al. ('354) discloses the claimed invention except for the processor includes a demodulator. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with the demodulator since it was well known in the art that a demodulator are used to extract from a modulated carrier, therefore allowing the processor to receive a pure signal which increases the measurement reliability.

**Claim 29**

deVos et al. ('354) discloses the claimed invention except for the selecting components of a spectrum. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with selecting components of a spectrum since it was well known in the art that using a spectrum increases the sensitivity of the light striking the sensor, therefore giving a more accurate measurement.

10. Claims 32,40-42 are rejected under 35 U.S.C. 102(b) as being anticipated by deVos et al. ('354).

**Claim 32**

deVos et al. ('354) discloses a first light source (Fig. 5, Ref. 20) located at a first known position; and a detection device (Fig. 5, Ref. 36) for detecting light from the light source (Fig. 5, Ref. 20) and determining the direction to the light source (See Abstract), the device comprising: a lens (Fig. 5, Ref. 40) for receiving light from the first light source (Fig. 5, Ref. 20) and

Art Unit: 2877

projecting a light pattern (Fig. 5, Ref. 16); a light sensing surface (Fig. 5, Ref. 36) for receiving the light pattern (Fig. 5, Ref. 16) and producing an output signal (Fig. 5, Ref. 41) in response thereto; and a processor (Fig. 5, Ref. 22) responsive to the output signal (Fig. 5, Ref. 41); wherein the processor is operable to determine the position of the detection device from the output signal and the known position of the first light source (See Abstract).

**Claim 40**

deVos et al. ('354) further discloses a controller (Fig. 5, Ref. 33) coupled to the first light source to control the characteristic of the first light source

**Claim 41**

deVos et al. ('354) further discloses the processor determines a distance from the detection device to the first light source according to the intensity of the light falling on the light sensing surface (Col. 9-10, lines 34-25).

**Claim 42**

The reference of deVos et al. ('354) further discloses the light source is of a laser diode (Col. 4, lines 40-45).

11. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over deVos et al. ('354).

**Claim 33**

deVos et al. ('354) discloses the claimed invention except for the lens is a pin-hole. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with the pin-hole lens since it was well known in the art that

these types of lens increase the sensitivity of the measurement since they help filter out background noise.

**Claim 34**

deVos et al. ('354) discloses the claimed invention except for the light sensing surface is a plurality of sensing elements. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with the plurality of sensing elements since it was well known in the art that using an array of detectors increases the sensitivity of the light striking the sensor, therefore giving a more accurate measurement.

deVos et al. ('354) discloses the claimed invention except for the light source is modulated. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine deVos et al. ('354) with the modulated light since it was well known in the art that modulating the light allows the detector to filter out background light therefore making the measurement more accurate..

12. Claims 45,46 are rejected under 35 U.S.C. 103(a) as being unpatentable over deVos et al. ('354) as applied to claim 32 above, and further in view of Maynard ('452).

**Claims 45 & 46**

deVos et al. ('354) substantially teaches the claimed invention except that it does not show a communication transmitter or a receiver coupled to the processor for transmitting or receiving the location of the object. Maynard ('452) shows that it is known to provide a communication transmitter (Fig. 2a, Ref. "Second laser system") or receiver (Fig. 2a, Ref. "Radio Receiver") for a three dimensional tracking system. It would have been obvious to

Art Unit: 2877

combine the device of deVos et al. ('354) with the transmitting or receiving of Maynard ('452) for the purpose of providing continuous data transfer of the position of the object, therefore allowing the user to see data in real-time of the position of the object.

13. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over deVos et al. ('354) in view of Maynard ('452).

deVos et al. ('354) discloses 47 a first light source (Fig. 5, Ref. 20) located at a first known position; a detection device (Fig. 5, Ref. 36) for detecting light from the light source (Fig. 5, Ref. 20), the device comprising: a lens (Fig. 5, Ref. 40) for receiving light from the first light source (Fig. 5, Ref. 20) and projecting a light pattern (Fig. 5, Ref. 16); a light sensing surface (Fig. 5, Ref. 36) for receiving the light pattern (Fig. 5, Ref. 16) and producing an output signal (Fig. 5, Ref. 41) in response thereto; a device processor (Fig. 5, Ref. 22) responsive to the output signal (Fig. 5, Ref. 41) and operable to determine the position of the light pattern (Fig. 5, Ref. 16) on the sensing surface (Fig. 5, Ref. 36); and a central processor (Fig. 5, Ref. 22) coupled to the receiver and operable to determine the location of the detection device (See Abstract).

deVos et al. ('354) substantially teaches the claimed invention except that it does not show a communication transmitter or a receiver coupled to the processor for transmitting or receiving the location of the object. Maynard ('452) shows that it is known to provide a communication transmitter (Fig. 2a, Ref. "Second laser system") or receiver (Fig. 2a, Ref. "Radio Receiver") for a three dimensional tracking system. It would have been obvious to combine the device of deVos et al. ('354) with the transmitting or receiving of Maynard ('452)

Art Unit: 2877

for the purpose of providing continuous data transfer of the position of the object, therefore allowing the user to see data in real-time of the position of the object.

***Allowable Subject Matter***

14. Claims 22,23,25,30,31,36-39,43,44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


15.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 571-272-2430.

The examiner can normally be reached on 4/10 Schedule Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Michael P. Stafira  
Primary Examiner  
Art Unit 2877

Application/Control Number: 10/041,052

Page 13

Art Unit: 2877

March 10, 2004